EXHIBIT E

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

OCEAN SEMICONDUCTOR LLC,
Plaintiff,
v. NO. 4:20-cv-991-ALM
HUAWEI DEVICE USA, INC.,
HUAWEI DEVICE CO., LTD.,
and HISILICON TECHNOLOGIES
CO., LTD.,
Defendants.

AND RELATED ACTIONS ON NEXT PAGE

REMOTE DEPOSITION OF RON MALTIEL

November 2, 2021

Reported by:

MARY F. BOWMAN, RPR, CRR

JOB NO. 201774

line 65, he talk of the kind of devices that could be used and he mentions a pneumatic, hydraulic, electromagnetic and mechanical.

So all these ways, the values, pneumatic cylinder that he is talking about, they can operate using different central force. It won't be purely just pneumatic.

Q. But my question is slightly different.

In order to be called a pneumatic cylinder, is it correct that there needs to be at least some type of pneumatic force or pressure involved in that device?

MR. PARKER: Objection, asked and answered.

A. Not necessarily. Not necessarily. Because if you look -- he described what kind of device it could be. And this device is operated by -- that was pneumatic, hydraulic, electromagnetic or mechanical.

Q. So is it your opinion that a

so you know -- and it cause ill effect, you know that you have a significant fault for any of these parameters that I mentioned.

Q. So is the fault actually the temperature being too high?

A. They seem -- the cause, because basically a cause you can think of it like the cause, the cause could be -- I mentioned several things it could be, like pressure, gas flow and so on and temperature. But you could have a situation that it would be just the temperature too high, yes.

Q. Did you say that the fault is the cause of the issue on the wafer?

A. The fault caused the problems, let's say. Let's just say that everything is perfectly within the parameters and the only thing is the temperature slightly was too high. So the temperature would be cause for the fault on the wafer.

Q. So the temperature is not the fault itself, it's the cause of the fault in your example?

A. I'm not clear what you mean the cause of the fault. The fault is that the wafer doesn't -- it's -- it doesn't -- it's not -- the current is too low, so it's not working, so this is the fault. It's the end result.

But the cause of the fault is the temperature being too high.

Q. So in your example, what would be a significant fault?

A. In a case the temperature is too high that lead to current being too low and not functioning die.

Q. So I want to make sure we are defining things properly.

You defined the fault as being something being wrong with the wafer or the dies itself.

So if the fault is significant, would the fact that there has to be an issue, a significant issue with the wafer itself?

A. No, it's the issue is the temperature.

I'm using fault like failure. So probably should use the way that the patent talking about it.

The fault, in my mind, is a synonym to the cause, the reason why you have the die failing, not functioning, not yielding. So the fault, the temperature being too high.

Q. So just to make sure we are on the same page, the fault is not the die failure. The fault is what leads to the die failure?

A. Yeah, the fault is the reason why the die failed.

Q. So the fault itself is -- has nothing do -- strike that.

The fault is not on the wafer. The fault is in the machine?

A. Sorry, what was the last word you said?

Q. The fault is not a fault with the wafer, the fault is a fault with the machine?

A. Well, I mean, this machine, all

these machines process wafers. So the thing that you are trying to make is semiconductor dies. And you care whether they work or not.

So the cause is something happened on the wafer due to machines that process the wafer. So the fault is the high temperature, if it's too high, deposition, and this caused the wafer to not function. Or the die.

Q. So in the context of the '538 patent, when it uses the term "fault," you understand that to be referring to conditions with the tool?

A. Well, it's not always conditions of the tool. But a typical example would be something happened on a tool which is different.

So you mean fault like it's the die on the tool to heated to, I don't know, 700 degree and they take it to 705 degree.

Q. So in the context of the '538 patent, when the '538 claims use the term "fault," in your opinion they are not

referring to any faults or issues with the wafer itself?

A. No, can we go to the specific -- we are talking here out of context. Can you show me what claim and what thing you are talking about?

Because I cannot answer just for it doesn't apply your question for the claim. I don't understand your question. Can you tell me which claim you are talking, the specific line and I can explain it.

Q. I'm talking about the '538 patent in general.

A. OK, so let me open the '538 or if you want, you could give me the '538. I have copies in my computer.

Q. So I believe the '538 patent has been marked as Exhibit 4.

A. OK, let me open it.

Q. So it was provided to you.

A. I have it -- yeah, I followed I don't see a written Exhibit 4, but OK, I open it.

So can you refer me to specific line or item you are talking about and then you can explain what I am saying?

Q. Before I refer you to a specific line, I guess I was just trying to get the bound of your understand of the '538 patent generally.

Based on your -- strike that.

Did you review the '538 patent --

A. Yes.

Q. -- in preparation for your deposition today?

A. Yes, I did.

Q. Do you recall there being instances of the '538 patent where the term "fault" referred to issues with the wafer itself?

A. I don't recall the specific sentence, but I mean if you look at table 4, in figure -- let me try to find it.

I mean, all this patent is talking about systems that's used to process wafers. It's not building the cut. It's for processing wafers as far as I'm

aware.

So let me turn, turn it. You don't want to show it. I'm trying to look sideways.

So basically talking on wafer, if you look at figure 4, which is an example of what you measure and all the things that you monitor, so it's showing -- all the values wafer and each wafer is a measure for specific operation, the pressure, the humidity, the temperature, gas flow and so on. And from this, it generated data and you know what is the average value and then they can assign value for things that are considered to be out of the -- like talking back here about the temperature, so yeah, column 3, the temperature.

So if, let's say the range is, I don't know, 698 to 702, and you get suddenly a wafer the temperature was 705, then this wafer would have a fault and you know you need to see what's going on with the machines.

Q. So using figure 4 as an example

and the example you just gave, the fault is the temperature being too high, correct?

A. Yes.

Q. The fault is not necessarily a problem with the wafer, correct?

A. Well, the only way that you know that you have a fault is that when the wafer is defective, that you designed the process to be a certain a set of parameters and if the process deviate from this parameter and the device stopped to conform, you know that some equipment or something has malfunctioned.

So the fault is it something in the equipment wasn't operating within the range that it should.

Q. So if you don't have any defects in the wafer, is it fair to say there has not been a fault?

A. When you say -- what do you mean when you say defect in the wafer?

Q. You, I believe you referred to a wafer as defective. So what do you mean by a wafer as defective?

A. That it doesn't meet the data sheet specification.

Q. OK. So using that definition, if you have a wafer that meets the data sheet specification, is it fair to say that there has not been a fault?

A. There hasn't been a fault in the values systems that produce the wafer at that moment in time.

Q. And based on how faults are detected, it's fair to say that if a wafer meets the data sheet specification, no fault would have been detected?

A. Yes.

Q. So faults are only detected if a wafer does not meet the data sheet specification?

A. Not necessarily that you -- you monitor all this machine and hundreds of machine that's the wafer take -- to process a wafer, like two, three months and 6,000 steps.

So you monitor all these operations and you record the data and if

you see problem with the wafer meeting the data sheet specification, then you use it to try to analyze and figure out what the fault.

And sometimes you do experiment to know what the boundary is like, like the example I'm bringing of temperature, that temperature of depositing, let's say, an depositing gate oxide on the wafer, and you monitor what kind of -- what rate of temperature you can have and still get good enough gate oxide, it will give you enough current, so it will meet the data sheet specification.

Q. Again, I just want to talk about situations in which the wafer -- excuse me, strike that.

If faults are only detected when the wafer does not meet the data sheet specification, then if the data sheet -- if the wafer is within the specs of the data sheet, no fault would be detected, correct?

A. I mean, it's not accurate -- or maybe I didn't explain it enough.

This equipment is all the time the equipment that process the wafer is all the time monitored.

So you will have a situation that you see the temperature fluctuate or gas pressure was too high or too low and you use this information correlated with how the wafer come out at the end of the production line to try to see which of this fault that happened in the equipment caused problems that caused the wafer to fail, not to meet the data sheet.

So it is sort of an interactive process.

Q. Understood. So if the wafer hasn't failed and it's within the specifications, there would be no reason to believe any fault has occurred in the tool, correct?

A. Yes, only when the wafer doesn't meet specification, you can then try to pinpoint what caused -- what was the fault that caused it.

Q. So I want to now turn your

attention to what's been marked --

A. Let me elaborate though so that you -- like for example, you also on test wafer during, let's say, the gate deposition as a process, and you see that the gate come too thick, the thickness is too high or too low, so you don't need to wait for the end of the processing to see if it conform to the data sheet because you know it's going to be defective, so you know at this end. So you have other way to monitor. It's not only at the end of the line.

Q. Understood.

But in that situation that you just gave, even in the middle of the process, it would already be out of specification, correct?

A. Yeah, it would be out of the specification of what is the gate supposed to be in single -- it's not -- the gate oxide is supposed to be to for that process.

Q. So now I want to turn your

attention, Mr. Maltiel, to what's been marked as Exhibit 1 which is your declaration from the Western District of Texas case, and specifically to paragraph 78.

A. Hold on. Let me get that.

OK.

Q. Specifically I'm interested in talking about the last sentence in paragraph 7. So let me know when you're there.

A. OK.

Q. So in this paragraph, I believe you're discussing an example from the patent in which in the prior art faults were detected that weren't actually faults, is that correct?

A. Yes.

Q. And they're not actually faults because in looking at the last sentence, the end product was not impacted by whatever variation is being detected, is that correct?

A. Yes.

Q. So again, this is the idea that if the end wafer or end product is not affected, there has not actually been a fault. Correct?

A. Yes.

Q. And so then looking at your next paragraph, 79, you state that, "The '538 patent, however, considered this fact that the product being manufactured is not impacted by the insignificant, i.e. not important, fault."

Isn't it true, though, that no fault has occurred if the product being manufactured is not impacted?

A. Well, I mean, the fault is if the equipment was supposed to be -- the pressure gauge, I don't know, between let's say -- say between 750 to 760 bar, and it was -- went to 770, so there is a fault in the equipment.

But based on the previous experience, it's part of the database that is used, so not to consider this as a fault that damaged the wafer.

Q. So there are faults that don't damage the wafer?

A. It's fault -- for each piece of equipment, there is specifications that says when you do operation XYZ, you need to have the pressure gauge for oxygen between this value, or radio between this value and so on.

And any time during the operation it deviate from it, it's recorded. And so you can call it a fault of the equipment.

But as far as manufacturing semiconductor die, it's not a significant one, and this is -- it's giving weighting parameter lower when it get out of range for this specific nonimportant one.

Q. The overall purpose of one of these tools is to manufacture wafers within specification parameters, correct?

A. Well, yeah, within electrical specification parameter.

Q. So if the tool produces a wafer within the electrical specification parameters, it is performed -- it has

performed its intended function, correct?

A. Yeah, but you don't know because assuming the design, the process, the defined range for which -- of the machine in each operation and it's always fluctuate, nothing is always exactly the same value, no deviation to the 10 digits or whatever.

So you don't know if it's the pressure went too high or too low that it wouldn't cause the product then not perform electrically as needed as it's supposed to by the data sheet specification.

So you flag it. But by assigning different weighing factor to each of this parameter for wherever it may fall, you have column for each of the pressure, humidity and so on. So by assigning different weight factor, you could consider it insignificant if you know that based on previous tests or the engineering value or basic experience that it wouldn't cause it to electrically be defective.

Q. So even if the tool performs its

intended function and produces a wafer that is within the electrical specification on the data sheet, it is your opinion that there could still be faults with the tool?

A. I'm sorry, I think you have been cut off. Or couldn't hear the last part.

Q. So even if the tool performs its intended function and produces a wafer that is within the electrical specification in the data sheet, it is your opinion there could still be faults within the tool?

A. Well, there are multiple tools to produce the wafer. So we are talking about just one tool out of the hundred tool, talking the last two or three months, the wafer process tool was out of the range of what the process parameter it was supposed to and this would be insignificant if at the end when you do the electrical testing, the wafer pass.

Q. When you say an insignificant fault, doesn't that just mean there was no fault because an acceptable wafer was created?

A. No. Because if a piece of equipment -- again, let's use the same example of temperature of 700 plus minus 2 degree and it starts one day to have out of the few minutes, let's say, the wafer is brought to this temperature, it spend two out of the five minutes, instead of being 702 max, it would be 705. And then the next day, it spent -- it happened more than once.

So you know the equipment has a fault and it starts to deviate from what it's supposed to provide you.

So you know that the equipment is failing and you know that at certain point, it will have a major failure that instead of being most of the time between 698 to 702, it spend all the time at 705 to 710. So you know that it is going to start reaching a point it would be need to be repaired.

So the equipment, it has a fault when it doesn't stay within the range.

Q. Did the '538 patent discuss

lead to the wafer being outside of the specification data sheet parameters somehow but would not be a significant fault?

A. No, we are talking about significant. This is a definition of significant fault.

So significant fault is a fault that happened at the equipment and cause the die to be out of the data sheet -- out of the date sheet specification.

Q. So what would a fault be if that is a significant fault?

A. If the parameter tend to fluctuate outside of the specification, and the equipment temperature, like if it's for few minutes get out of what the spec should be, this should be just a fault by itself. Not necessarily significant.

Q. But in the example you just gave, if the resulting wafer completely passed all requirements of the data sheet specification, there wouldn't actually have been a fault with the tool, correct?

A. Yeah, but this would be

nonsignificant fault if it passes. If it doesn't pass, it will be a significant fault. I mean, if it doesn't pass -- yes, if it does not pass, it will be a significant fault.

Q. So there is no fault --

A. I wouldn't use it as no fault. There is a spec what equipment should -- I mean, what parameter, let's say the high temperature oxidation machine rate what it's supposed to be, if it's fluctuate outside of this range, it's a fault. If it does -- but if it's not at the level that produce nonfunctioning die, it's not a significant fault.

Q. If -- strike that.

In your opinion, in the context of the '538 patent, are there only insignificant and significant faults?

A. Yes, you can recognize a fault that cause the die not to function and fault that doesn't impact the die at the end of the hundred of steps of the processing of the wafer.

A. When you say unambiguous, you don't need to consider anything else. I wouldn't consider extrinsic -- I wouldn't consider extrinsic if intrinsic is fairly clear and not ambiguous at all.

Q. Is it your opinion that the intrinsic evidence of the '097 patent defines the phrase "ultra-thin resist"?

A. Yes.

Q. Is it your opinion that the specification of the '097 patent is unambiguous on that point?

A. Yes.

Q. If the court disagrees and finds that the specification is ambiguous, should the court consider extrinsic evidence?

A. I don't know, I'm not an attorney.

MR. PARKER: Calls for a legal conclusion.

A. I cannot say to a legal conclusion.

Q. Let's talk for a few minutes on the doctrine of claim differentiation. Are

different in the way that it describes an ultra-thin resist?

MR. PARKER: Objection. Vague.

A. It's talking about ultra-thin layer that is in claim 1, and it just puts out a number that is mentioned in the specification of 2500 angstrom.

Q. So claim 4 does provide a thickness for an ultra-thin resist layer, is that correct?

A. It cites -- it cites the number that is mentioned also -- I think it was like four times the specification, and several more times in the figure of the 2500 angstrom.

Q. So in your view, based on the specification, any time the patent refers to an ultra-thin resist layer, would a person of ordinary skill in the art understand that to be a resist layer with a thickness of less than 2500 angstroms?

A. Yes.

Q. Then why would the inventors include that language in claim 4? Why

Q. So I'm not asking you at all about claims 2 or 3. Is it your opinion that claim 1 always includes what's recited in claims 2 and 3?

A. No, there are under certain circumstances, so this is why you need to ask a legal expert whether the scope is different or not. But I'm not an attorney.

Q. OK. Well, I'll try one more time.

From a technical perspective can you tell me whether the scope of claim 1 is the same as scope of claim 4?

A. It's, again, that you have the issue of claim 2 and 3, how you interpret them in relationship that make me -- make it hard for me to tell you whether it's the same scope or different.

Q. Is that the only issue you can see from a technical perspective as to whether claim 1 and claim 4 have the same scope?

A. Right at this moment, yes.

Q. Is it your testimony,

Mr. Maltiel, that claims 1 and claims 4 both require an ultra-thin resist that has less than 2500 angstroms of thickness?

A. Yes, based on the specifications.

Q. Why would the inventors include two claims that both require an ultra-thin resist of less than 2500 angstroms?

MR. PARKER: Objection calls for speculation, objection, asked and answered.

A. Yeah, I believe I answered it at least a couple of times.

Q. Well, for my benefit, could you repeat your answer.

A. I don't know the inventor, I never met him, I believe, and I didn't discuss it with him. So I don't know his reason.

Q. Mr. Maltiel, would you turn to column 1, lines 43 through 45 of the '097 patent.

Let me know when you're there.

A. Column 1, which lines?

Q. Lines 43 to 45.

A. Maybe this is why he put claim 4. I mean, I don't know the mind of the inventor. Like if I say, I didn't met him, I didn't know him. I didn't interview him.

Q. Mr. Maltiel, let's turn back to column 1, lines 43 through 45.

A. OK.

Q. Do you see the phrase there "is considered to be"?

A. Yes.

Q. What do the words "considered to be" mean to you as a person of ordinary skill in the art?

A. That in his experience, people would recognize it to be this thickness. But at the same time, you want to be sure that they know what he means.

Q. A person of ordinary skill in the art at the time of the alleged invention, where would you go to look for what other people of skill in the art recognized as an ultra-thin resist?

A. I'll ask them. I'll basically ask the people or try to find a record of

what is it considered to be.

Q. Would that include publications like in IEEE or SPIE?

A. I wouldn't need to if I am reading this patent. It mention things like three or four times what it is. There are at least twice in the figure they mention it. So it would be clear enough that what the inventor, when he is talking about ultra-thin resist, what he means.

Q. So did you consider the fact that the inventor didn't use the word "is" by itself but used the phrase "is considered to be"?

A. I mean, it's possible that he just was talking here that potentially that maybe other people call ultra-thin resist different thicknesses, but he want for people to be clear that when he is talking in this patent of ultra-thin resist, it has to be less 2500 angstroms.

Q. Wouldn't it have been clearer he just said that an ultra-thin resist is resist films of less than 2500 angstroms?

MR. PARKER: Objection, vague.

A. I don't know.

Q. So is it accurate to say you don't know what the inventors meant when they used the phrase "is considered to be"?

A. No, I mean, maybe he want to make sure that for his case, it has to be 2500 angstrom, and if he thought it not important, he wouldn't have mentioned it so many different times.

Q. Why was it necessary for him to mention it more than once at all if this is a definition of what an ultra-thin resist means?

MR. PARKER: Objection, speculation.

A. I don't know what was in his mind, but he wanted for people to be clear what he is talking about, and if it was only once, it shows that he didn't care that much what the thickness would be or he hopes that people will use the thickness.

But if he really cared a lot about it, this is why it is mentioned so